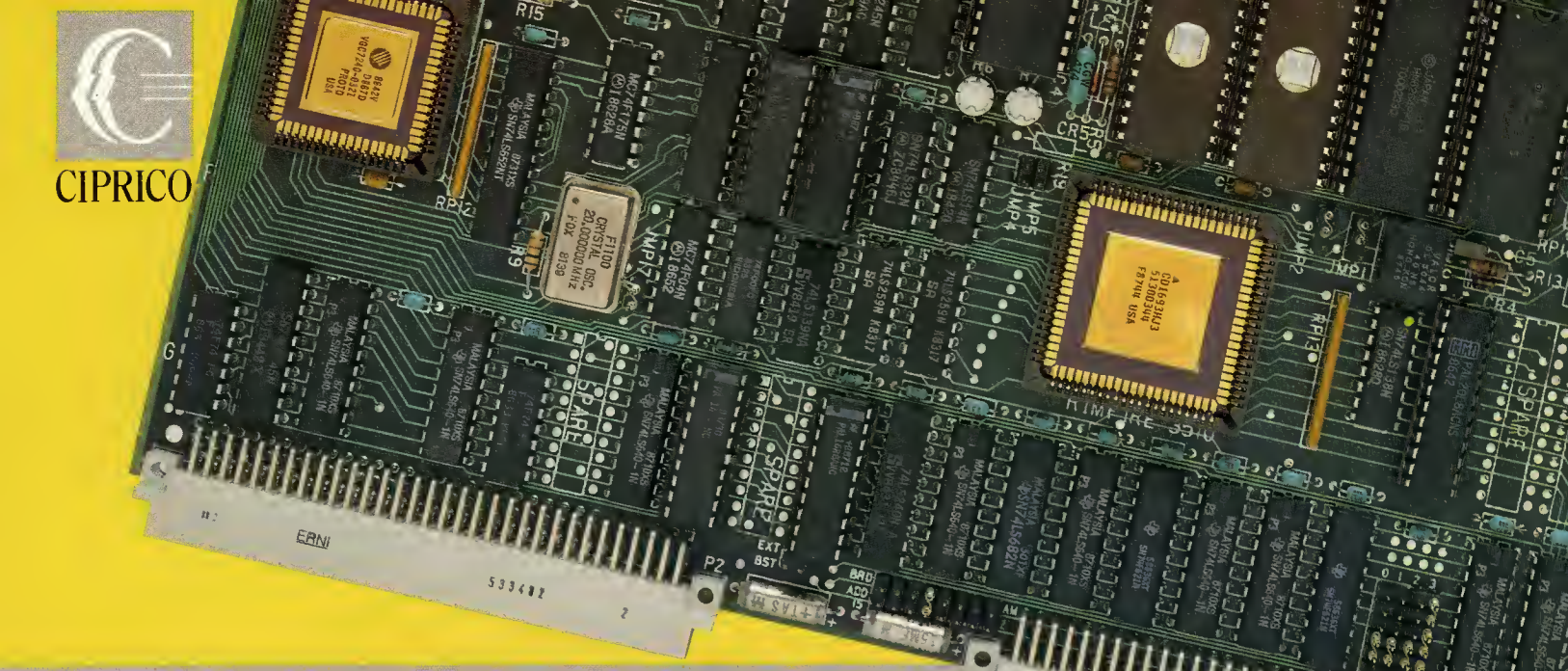
CIPRICO



Rimfire 3510

VMEbus SCSI Host Bus Adapter with Floppy Port

With Ciprico's Rimfire 3510, VMEbus users can enjoy the performance and flexibility of a wide range of SCSI bus compatible peripherals without sacrificing VMEbus performance.

Supports any SCSI bus command.

5 Mbyte/sec SCSI Bus Interface.

By providing the complete solution for peripheral needs, the Rimfire 3510 opens new doors in performance and flexibility for VMEbus compatible systems using the SCSI bus. Important features and benefits include:

☐ **Providing complete control over SCSI bus operations,** a software interface using pass-through commands allows the system to select which commands are sent to the peripheral controllers. Rimfire 3510 parameter blocks have a SCSI command descriptor block embedded in them. The board will issue the command descriptor block directly to the SCSI bus upon reading it from system memory. This allows the use of any mandatory, optional, and vendor-unique SCSI commands as well as commands defined in the Common Command Set (CCS) specification.

☐ **A large circular command queue,** designed for system software, links the operating system to the Rimfire 3510 adapter. The queue, with a command capacity exceeding practical limits, receives requests from the operating system driver as soon as they are ready, with no timing restrictions. With access to all pending SCSI requests, the Rimfire 3510 can take advantage of the disconnect/reconnect capability of the SCSI bus and issue overlapped commands for different devices.

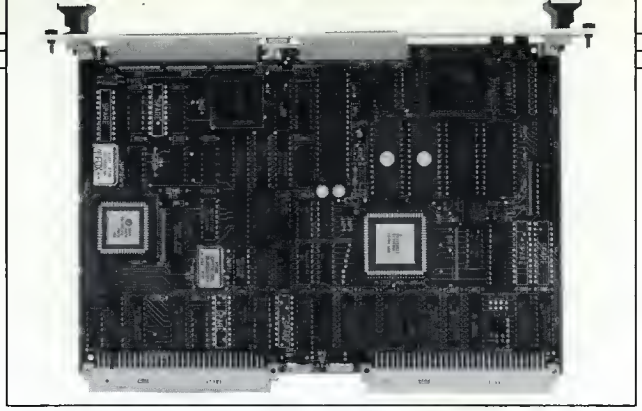
☐ **With a transfer rate capability of 30 Megabytes/second,** Ciprico's proprietary Short Burst FIFO and Pipelined System Interface gate arrays combine to increase bus efficiency. By moving data across the bus at a rate limited by the capability of system memory boards, the Rimfire 3510 uses only a small fraction of the available bus bandwidth for data transfers.

☐ **Support for up to 4 single, dual, or quad density floppy drives** provides users with an economical method of floppy capability in their system. By buffering all floppy data in on-board local memory, SCSI performance is not degraded during floppy transfers. Supporting IBM PC XT/AT compatible drives, floppies continue to prove valuable as a method of loading software patches and updates, running diagnostics, transporting files, and even as a modest backup alternative.

☐ **A 5.0 Megabyte/second synchronous SCSI bus transfer rate capability,** as well as a 2.0 Megabyte/second asynchronous rate capability, eliminates the possibility of any transfer rate bottlenecks. With data rates of SCSI bus peripherals continually increasing, the Rimfire 3510 has the ability to meet future needs.

☐ **With a single-ended or differential SCSI bus interface,** system to peripheral interconnection choices are made by the systems designer, not the board supplier. Even if today's needs are met with everything in a single enclosure, where a single-ended interface fits the need, tomorrow's expansion may mean an external cabinet. The Rimfire 3510 was designed with this in mind, providing differential capability as an option.

Rimfire 3510 VMEbus SCSI Host Bus Adapter



Performance and flexibility were key goals of the Rimfire 3510, and innovative design techiques from Ciprico achieved the goals without sacrificing another important SCSI benefit — cost effectiveness.

SCSI Interface. Up to seven SCSI devices compatible with the ANSI X3.131-1986 specification are supported. SCSI bus connections are through the adapter faceplate. Initiator and target operations are supported.

SCSI Bus Options. Support for single-ended SCSI devices is standard. A version supporting differential SCSI devices is also available.

SCSI Transfer Rate. Asynchronous transfers at a rate of up to 2.0 Megabytes/second are supported. A synchronous transfer mode capability of 5.0 Megabytes/second is standard.

Floppy Interface. Support for up to four double sided, single, dual or quad density floppy drives. IBM PC XT/AT compatible. For applications not requiring floppy capability, a SCSI only version of the board is available.

Floppy Operations. Floppy data is buffered in on-board local memory. To prevent SCSI throughput degradation, floppy data will only be transferred to system memory when the Rimfire 3510 is not actively using the SCSI bus.

VMEbus Interface. Compatible with Revision C.1 of the VMEbus specification. Data transfers of 8, 16, and 32 bits are supported, with addressing capability of 16, 24, and 32 bits. Hardware support of byte and word ordering swapping of VMEbus data is provided.

VMEbus Interrupts. Seven level dynamic Interrupter support.

VMEbus Performance. With minimum memory response time, data transfers can be burst at 30 Mbytes/sec using the block transfer capability of the VMEbus. For non-block transfer memories, data can be burst at 20 Mbytes/sec.

Software Interface. A circular command queue supporting more than 2000 commands is available for use. Commands are inserted in the queue asynchronously and without timing restrictions. Status blocks are returned to the system using a similar queueing technique.

SCSI Commands. Standard SCSI command descriptor blocks are embedded in Rimfire 3510 parameter blocks. The SCSI commands are extracted from the parameter blocks and "passed through" to the SCSI bus. All standard, optional, and vendor-unique SCSI commands are supported. Use of the Common Command Set (CCS) is also standard with this pass-through command technique. In addition, the Rimfire 3510 adapter can operate as a target device, ideal for host-to-host applications.

Floppy Commands. System software accesses floppy drives as though they are normal SCSI devices located at an unused SCSI I.D. of FEH. Floppy commands use a parameter block format identical to normal SCSI commands.

Software Support. Drivers for the System V and BSD 4.2 versions of the UNIX® operating system are available.

Command Optimization. Overlapped SCSI commands are supported. When devices disconnect from the SCSI bus, commands queued for other SCSI devices will be issued.

Scatter/Gather. System memory data transfers can be performed using a scatter/gather transfer technique. This allows complete data blocks to reside in memory segments of any size and at discontiguous locations.

Diagnostic Capabilities. An automatic power up diagnostic is provided. In addition, extensive diagnostic tests are available through software control.

Visual Indicators. Busy and error LEDs are visible through the board's faceplate.

Shielding. Shielded connectors and a conductively coated faceplate are optional.

Physical. Single slot, double height Eurocard form factor board, 233 x 160 mm.

Electrical. 5-volt only operation, at 4 amps typical.

Environmental. 0-55 degrees Celsius ambient temperature. 200 linear feet/minute air flow.

How the Ciprico "system" supports your own

At Ciprico, our long experience in controller board design and manufacturing is your assurance of full support—both during integration and evaluation and beyond. This support includes:

- ☐ **Thorough testing and inspection,** including comprehensive ESD control, 100% testing on in-circuit test equipment, burn-in testing, and pre-shipment functional testing in stressed environments
- ☐ **On-site evaluation assistance**
- ☐ **Immediate evaluation board shipment** from factory stock
- ☐ **4-hour response** from qualified support engineering staff
- ☐ **48-hour board repair,** including functional testing

For more information on the Rimfire 351 contact:

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